Proposals for Revised and New Ambient Air Quality Guidelines:

A summary of submissions received on the discussion document and proposals for amendments

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Contents

1 Introduction

On 30 March 2001 the Ministry concluded its consultation on the proposals for revised and new ambient air quality guidelines.

This consultation document provides an opportunity for further comment on how the Ministry proposes to amend the draft proposals to take account of the submissions received.

The document is structured to reflect the framework of the discussion document. For each chapter in the *Proposals For Revised And New Ambient Air Quality Guidelines Discussion Document*, a summary of the submissions received has been provided. In some instances, amendments have been proposed in response to these submissions. The amendments reflect a general assessment of the comments received. It is not the intention of this document to reply to individual points raised in submissions.

We would welcome views on these proposed amendments. **The Ministry is therefore consulting on these proposed amendments until 22 October 2001.** Following this, the Ministry will finalise the ambient air quality guidelines and the guidance on how to apply them by December.

Submissions should be made to:

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Please provide your name, address and contact details with your submission. If the submission is on behalf of a group, please provide a brief description of the group and how air quality is of particular relevance to the group.

If supplying information that is confidential – or if you do not want your submission made publicly available, please mark this clearly.

2 Application of the Ambient Air Quality Guidelines 1994

2.1 Summary of submissions

Sir David Hay's comments agree with the view that there is a lack of information about the spatial and temporal distribution of air pollutants and their actual health effects. He specifically refers to a lack of research on whether particles derived from wood burning are a significant health hazard, as contrasted with those from coal or oil burning. Genesis Power, New Zealand Pavement & Bitumen Contractors' Association and Aggregate & Quarry Association, and New Zealand Wood Panels Manufacturers' Association refer to section 2.3 (air quality monitoring programmes). Although they support the need to effectively monitor the air environment and agree that this should be done using internationally recognised methods, they recommend that simple 'screening' methods should also be allowed, where a detailed monitoring programme is not warranted. Carter Holt Harvey is concerned about the reference to 'industrial' discharges in section 2.5 (hazardous air contaminants).

2.2 Proposed amendments

i. Section 2.3 should be amended to mention how simple screening methods to monitor air pollution can be useful in those situations where a detailed programme is not warranted or as an adjunct to a comprehensive programme (such as the use of passive samplers for nitrogen dioxide, ozone and sulphur dioxide) to determine how representative the data obtained from fixed stations is to the region as a whole.

ii. As a majority of the hazardous air contaminants are also associated with emissions from motor vehicles, rather than just refer in section 2.5 to industrial discharges of hazardous air contaminants, the section should be amended to include the need to manage emissions of hazardous air contaminants from motor vehicles, domestic heating, other combustion sources and industrial processes.

3 Proposals for Air Shed Management

3.1 Summary of submissions on the proposed guideline values

Carter Holt Harvey Kinleith Mill wants the document to reflect the view that the guidelines are set to protect the health of susceptible groups and hence 'may be protecting a very limited number of people'. Contrary to that industry view, Fletcher Steel commends the basic philosophy of setting guideline values primarily to protect human health and taking into account what is known internationally.

Auckland Area Health Board, Environment Southland, and Freeman Environmental Solutions support all the proposed changes to the 1994 guideline values in Table 1. Nelson City Council generally supports the public health intent of the guidelines, and accepts the values represent the best international thinking on air quality. Parliamentary Commissioner for the Environment expresses similar views. Christchurch City Council specifically supports the change to the PM_{10} concentration value, from 120 $\mu g/m^3$ to 50 $\mu g/m^3$, as do the Institute of Geological & Nuclear Sciences and Waitakere City Council. Waitakere City also supports the lowering of the nitrogen dioxide guideline, from 300 $\mu g/m^3$ to 200 $\mu g/m^3$. Environmental Futures are particularly happy about the PM_{10} concentration value being lowered but they would prefer both a maximum acceptable level and a maximum desirable level for guidelines. The Ministry of Health wants more information in the Discussion Document on what is happening in the international arena and wants more detail on where the recommended changes came from.

Environment Canterbury is supportive of most of the recommended changes to the guideline values, but sees merit in retaining the 10 minute sulphur dioxide guideline to monitor the impact of industrial emissions. They also feel the hydrogen sulphide guideline should more appropriately be part of the forthcoming review of odour management guidance. Parliamentary Commissioner for the Environment also comments on the removal of the 10-minute sulphur dioxide guidelines, and seeks guidance on whether short-term, high concentrations can be effectively controlled by limits on emissions from point sources. Environment BOP wants a "rider" on the hydrogen sulphide guideline that it does not apply to geothermal areas. New Zealand Leather and Shoe Research Association and New Zealand Tanners' Association make similar points.

Coal Research Association believes the Discussion Document does not present adequate evidence to justify lowering the PM_{10} concentration value to 50 $\mu g/m^3$. They want retention of annual average values for PM_{10} and sulphur dioxide, and oppose the $PM_{2.5}$ guideline. Sir David Hay and Dr John Hoare also favour retention of the annual average for PM_{10}. Mighty River Power and Natural Gas Corporation believe there should be more guidance of how the proposed guidelines for PM_{10} and hydrogen sulphide are to be used in resource consents. Genesis Power, New Zealand Pavement & Bitumen Contractors' Association and Aggregate & Quarry Association, and New Zealand Wood Panels Manufacturers' Association, accept the reduction in the PM_{10} concentration value, but want it to include an allowable exceedance level. Sir David Hay and New Zealand Dairy Research Institute also expected to see reference to permitted exceedances.

Fletcher Steel, Genesis Power and New Zealand Dairy Research Institute question how an "interim" $PM_{2.5}$ guideline would be applied, and Genesis Power, New Zealand Pavement & Bitumen Contractors' Association and Aggregate & Quarry Association, and New Zealand Wood Panels Manufacturers' Association, want it deleted. New Zealand Dairy Research Institute believes it is sufficient to highlight that a $PM_{2.5}$ standard is under development. Mighty River Power and Natural Gas Corporation believe there is neither sufficient evidence nor justification for adopting the $PM_{2.5}$ guideline. Institute of Geological & Nuclear Science support the introduction of $PM_{2.5}$, but had hoped to see reference to the need for nation-wide sampling for $PM_{2.5}$ and to $PM_{1.0}$. Genesis Power has problems with the proposed reduction in the one-hour nitrogen dioxide concentration value, to 200 $\mu g/m^3$, and instead wants to be in the range 200 to 300 $\mu g/m^3$. New Zealand Pavement & Bitumen Contractors' Association and Aggregate & Quarry Association, and New Zealand Wood Panels Manufacturers' Association, want it to be 250 $\mu g/m^3$.

Dr John Hoare doubts that PM_{10} is a unique causative agent to the health effects attributed to it, and contends that a progressive policy to reduce various gaseous emissions which subsequently contribute to ambient particle levels probably ought to be given as much weight as reducing emissions of soot. Dr Jim Stott believes the number of particles is more important than the weight of particles. He questions the validity of the epidemiology that extrapolates a straight line of pollutant effects down to zero concentration, and he believes there is too much scaremongering. Environmental Futures wants Councils to formulate requirements to protect amenity, while Waitakere City Council support any air quality standards to protect visual amenity.

Air Resource Management is concerned about the numerical value of formaldehyde (15 $\mu g/m^3$) in Table 2. New Zealand Wood Panels Manufacturers' Association included a review by Toxikos Pty Ltd of Melbourne on the proposed guideline values for formaldehyde and acetaldehyde. They see no justification for long-term average concentrations for formaldehyde, and instead propose a one-hour average guideline of 90 $\mu g/m^3$. For acetaldehyde they support the use of an annual average, but suggest the concentration value be increased from 30 $\mu g/m^3$ to 50 $\mu g/m^3$.

Exide Technologies are concerned about the lead concentration value in Table 1 being decreased to 0.2 $\mu g/m^3$, and want to know where that came from. Although Fletcher Steel also see no justification in going to the 0.2 $\mu g/m^3$ value. Hutt Valley District Health Board want the text on both lead and other metals to specifically mention the guidelines only take into account of the inhalation exposure route. New Zealand Leather and Shoe Research Association and New Zealand Tanners' Association question the classification of chromium compounds, and sees no reason why chromium II is included and proposes that chromium III could also be removed.

Auckland Area Health Board and Christchurch City Council support encouragement of monitoring of hazardous air pollutants and the introduction of guideline values for those air contaminants. Carter Holt Harvey wants inclusion of common sources of the priority hazardous air contaminants in the Discussion Document. Ministry of Health wants to see the health risk factor for each of the recommended values in Table 2. Environment BOP want the formula relating concentrations and averaging times to be given in the Discussion Document, and they recommend application of the 2010 benzene guideline of 10 $\mu g/m^3$ now. JCL Air and Environment question the choice of some of the hazardous air pollutants. JCL Air and Environment question whether arsine, toluene and xylene should be included, and suggests that chloroform, acrolein, 2-methoxyethanol and cadmium may have greater significance for human health. New Zealand Leather and Shoe Research Association and New Zealand Tanners' Association refer to the malodorous nature of arsine.

Mighty River Power state that the proposed guidelines for hazardous air contaminants are unsupported, and in many instances they are inconsistent with currently accepted assessment concentrations. JCL Air and Environment believe the same risk factor as for drinking water, 1:100,000, should be used for air contaminants, most especially benzene. Oil Industry Environment Working Group believes there is no justification to go below a guideline concentration for benzene of less than 10 µg/m^3. They favour 16 µg/m^3 now and 10 µg/m^3 in 2010. Neither do they see any need for a guideline for 1,3-butadiene. Oil Industry Environment Working Group also wants the evaluation of acetaldehyde to be based on the no observed effects level for irritancy, and await the results of the EU evaluation of the utility of BaP and a marker for PAH.

Environment Canterbury believes the guideline concentration values should be referenced to a particular monitoring method. Dr John Hoare questions the validity of the TEOM method, specifically the problems caused by varying quantities of bound water depending on the operating temperature of the instrument.

New Zealand Leather and Shoe Research Association and New Zealand Tanners' Association do not believe the recommended monitoring method for chromium will distinguish between the valence forms, and they are also concerned about possible interference from sulphur dioxide in the recommended method for hydrogen sulphide. JCL Air and Environment advise that there is a US EPA method (IO-5) for mercury that should be suitable. Mighty River Power and Natural Gas Corporation want to see a process for evaluation and acceptance of monitoring methods, including 'equivalency' concerns.

3.2 Proposed amendments

i. Many of the comments highlighted a problem with insufficient information being extracted from the background technical reports to support or explain the document's recommendations. It is therefore recommended that where relevant, addition technical information should be included. Additional technical information will however be limited to clarifying key points.

ii. Although there should be no changes made to the numerical values in Table 1, more of background information in Technical Report 12 needs to be brought into the text of section 3.1.1. More of the background in Technical Report 13, as it relates to sources of hazardous air contaminants, current ambient levels, and measures to reduce concentrations in air sheds, needs to be brought into the text of section 3.1.2. Relevant parts of Appendix 2 and Appendix 3 need to be brought into section 3.1.2, possibly as one table and text, with corrections to a couple of formatting errors.

iii. The Ministry recognises that an odour-based value for hydrogen sulphide has limited use as an air shed criterion. It therefore proposes to maintain this value with clarification added to Table 1, along the lines, "The hydrogen sulphide guidelines are based on the prevention of odour annoyance and may not be appropriate for geothermal areas".

iv. Tables 1 and 2 should be combined to make one comprehensive list.

v. The table and the text of section 3.1.1 need to stress that the guideline values, and the averaging times, are established for the management of air sheds.

vi. Some submissions raised concerns about the choice of contaminants, particularly toluene and xylene and whether short-term guidelines would be more appropriate. The proposal is to retain the list of hazardous air contaminants as outlined in the guideline review document with the exception of toluene and xylene. The Ministry acknowledges the comments made that these two contaminants are not considered to have long term effects in the same way as the other hazardous contaminants in the list. It is therefore proposed that they are deleted from the guidelines. The guidelines should be prioritised to those contaminants of the greatest concern. A shorter list of guideline values of key contaminants should assist the regional councils in focusing their air management activities.

vii. Annual averages are considered to be appropriate guideline values for air shed management. However, the table and the text of section 3.1.1 should be amended to record that for some air contaminants, especially those associated with point source discharges (such as, sulphur dioxide, formaldehyde, lead, and chromium), it may be more appropriate to use a short-term concentration limit value as part of the resource consent process.

viii. The table and the text of section 3.1.2 needs to accurately reflect the status of benzo(a)pyrene, in that it is an indicator species for the group of organic compounds called polycyclic aromatic hydrocarbons (PAHs), and that it would be preferable to eventually have a toxic equivalency scheme for PAHs (similar to what has been established for organochlorines).

ix. The table and the text of 3.1.2 should list the other forms of chromium (that is, other than chromium VI) as chromium metal, chromium II and chromium III.

x. Section 3.1.3 needs to give a more comprehensive description of the issues associated with monitoring methods, including the United States Environmental Protection Agency (USEPA) use of 'equivalent methods'.

xi. The PM2.5 will remain an interim value as outlined in the discussion document. However the Ministry acknowledges that more guidance may be needed in how to apply this interim value.

3.3 Summary of submissions on applying guideline values

Genesis Power suggests deletion of all reference to region-wide air sheds, as they regard it as misleading. They also believe it is unjustifiable for any regional ambient air quality guidelines to be introduced that are different from national guideline values, but accepts that region-specific criteria are appropriate for contaminants that are not addressed by the national guidelines. The submission on behalf of four industrial companies provides discussion of a definition of urban air sheds. Sir David Hay concurs with the statement in section 3.2.2 that adopting international guidelines or standards as regional criteria should not be done without carefully examining how they were established. At the same time, Sir David believes the US Environmental Protection Agency has access to far more research than any other country and so their recommendations should always be given due weight.

Genesis Power opposes the application of guidelines to areas where human occupation is sporadic or of limited duration, and New Zealand Leather and Shoe Research Association and Transit New Zealand have similar concerns. New Zealand Pavement & Bitumen Contractors' Association and Aggregate & Quarry Association, and New Zealand Wood Panels Manufacturers' Association, argue that the PM_{10} guideline be applied to residential or neighbourhood sites that represent pollution levels over an urban-wide air shed, and away from major sources. The submission on behalf of four industrial companies supports ambient monitoring stations being located so as to characterise the air quality of an urban air shed, rather than focusing on hotspots. Coal Research challenges the assumption that the choice of monitoring sites should reflect extreme rather than typical locations.

Auckland Area Health Board generally supports the approach taken in the Discussion Document on applying the guideline values to managing air sheds, but for the indicator air quality categories feels there is a need to specify clearly defined timescales with which to remedy reduced air quality. Freeman Environmental Solutions also supports the general approach, but notes that the indicator categories have been incorrectly used in the past to interpret the results of dispersion modelling without consideration of other sources. Parliamentary Commissioner for the Environment strongly supports the setting of target dates by regional councils for meeting regional criteria in policies and plans. Mighty River Power recognises that this section is about air shed management, but is of concern to industrial dischargers because the management policies will affect discharge consents. The submission on behalf of four industrial companies raises similar concerns.

Environment BOP and Environment Canterbury are concerned about a statement that suggests the aim is to 'maintain' air quality when it is below 66% of the guideline value, whereas we should strive for improvements. On the other hand, Genesis Power wants the Discussion Document to recognise that the majority of New Zealand enjoys good air quality, and decision-making should not inhibit development by requiring the protection of good or pristine air quality. New Zealand Pavement & Bitumen Contractors' Association and Aggregate & Quarry Association, and New Zealand Wood Panels Manufacturers' Association, have similar views, and they refer to the economic advantages brought by industrial activities that may degrade to some degree areas with high air quality. Marlborough District Council believes the Discussion Document does not adequately address issues in rural areas, such as burn-offs. They have two general concerns about the guidelines, first, the cost of monitoring and, second, are the guideline values what they want for Marlborough or can they achieve better?

Winstone Aggregates supports explanatory guidance on how to apply the guidelines. They contend that in most cases ambient guideline values are not appropriate criteria for single sources. In particular, Winstone Aggregates seek clear statements that decision makers should only apply the PM_{10} guideline values to those situations where PM_{10} is an appropriate parameter. The document should clearly state that PM_{10} is an air contaminant largely associated with urban air quality management, and that total suspended particulate and/or dust deposition are more relevant parameters for the mineral processing industry. The submission on behalf of four industrial companies argues the document requires further analysis of air quality management options for urban areas. Anchor Products also want more explicit guidance for regional and territorial authorities as to the use of the guidelines when preparing plans and considering applications for resource consents. A particular concern is whether or not applications should be publicly notified. They state that much of the information is dispersed throughout the document, and believe it should be relatively easy to provide better guidance.

Carter Holt Harvey supports much of the section on applying the guideline values, in particular where it refers to cost-benefit analysis, increased information gathering (but that this should be prioritised), and to consideration of site-specific circumstances such as location and socio-economic factors in establishing the Best Practicable Option. Coal Research Association also supports cost-benefit analysis, and what it sees as the Discussion Document's 'emphasis on the important role of the Best Practicable Option'. Oil Industry Environment Working Group strongly recommends that cost-benefit studies be conducted as part of the standard setting process.

3.4 Proposed amendments

i. Although there seems to be no need to change the general conclusion reached, the discussion in subsection 3.2.1 on "Where do the guideline values apply?" should be amended to fully address the issues associated with ambient air monitoring near large point sources.

ii. An additional subsection, positioned between 3.2.2 and 3.2.3, with a possible title "Other criteria" should be included. This is to address the valid points made regarding how other air quality criteria, such as for total suspended particulate and dust deposition, are often more relevant to the air quality management of certain types of industrial processes, and that these can be applied using concepts such as trigger levels and management plans as conditions of resource consents.

4 Options for Managing Industrial Discharges

4.1 Summary of submissions

Carter Holt Harvey expresses concern that the section is labelled 'industrial discharges', and proposes it is changed to 'point sources'. They also raise concerns about the 'precautionary principle' and 'conservative decision-making' being advocated for industrial discharges and not for other activities. Genesis Power sees the Discussion Document as being unfairly balanced against industrial discharges, when the air quality problems come from other sources. They recommend either section 4 be deleted and be the subject of a separate 'implementation' document, or the Discussion Document be redrafted to address other emission sources (including vehicle and other non-industrial sources) in a manner commensurate with their contribution to air quality issues. Milburn consider it is inappropriate to discuss the management of industrial air discharges in this discussion document. Environment Canterbury also thinks the topic of this section would be better in a separate document, so as not to confuse design level concentrations and ambient air quality concentrations.

Exide Technologies also want modelling design concentrations to be addressed in a separate document. Milburn acknowledge emission modelling is important, but they believe it should be the subject of a separate document. New Zealand Wood Panels Manufacturers' Association also believe numerical modelling guidelines should not be published in the absence of a comprehensive modelling guide. Further, they argue that, if national modelling design concentrations are promulgated as guidelines, then the contaminants include carbon monoxide, PM_{10}, nitrogen dioxide, sulphur dioxide, lead and fluorides. Environmental Futures see merit in national guidance on dispersion modelling, but cautions against it replacing getting out on site and seeing the actual situation. The anonymous submitter says the complexity of dispersion modelling is beyond most people to understand, and clear guidance is required. New Zealand Dairy Research Institute also request guidance on dispersion modelling, and in particular the application of modelling results to air-shed guideline compliance.

New Zealand Dairy Research Institute see the distinction between air-shed guideline values and modelling design concentrations as particularly important, and seek clarification of this issue as an essential step in the progression from ambient air quality guidelines to specific consent requirements. Mighty River Power and Natural Gas Corporation believe not enough consideration is given to the option of controlling the effects of industrial discharges by source monitoring. Fulton Hogan claims the proposed modelling design concentration for formaldehyde of 20 $\mu g/m^3$ is onerous for the hot mix asphalt industry.

Coal Research Association supports Option 1 (General Guidance), for the reason of local flexibility being preferable to national practice. Environment BOP supports Option 3 (National Modelling Design Concentrations for New Contaminants), but only if the list is as extensive as that of the Victoria Environment Protection Authority. Freeman Environmental Solutions would like this approach except she has grave concerns about the use of the power law to derive the one hour values in Table 5. The submission on behalf of four industrial companies concludes that some of the one hour values in Table are excessively low, and this results from the simplified manner in which they were derived. New Zealand Wood Panels Manufacturers'

Association, based on a review by Toxikos Pty Ltd of Melbourne, concluded that if modelling design concentrations are retained in the guideline document then the value for formaldehyde be increased to 90 µg/m^3. For acetaldehyde they recommend the modelling design concentration be deleted, but if the Ministry intend to retain it then a concentration value of 750 µg/m^3 be used. The submission on behalf of four industrial companies also favours short-term health guidelines for some hazardous air pollutants, and it specifically refers to the input from Toxikos Pty Ltd on formaldehyde and acetaldehyde.

Fletcher Steel, New Zealand Pavement & Bitumen Contractors' Association and Aggregate & Quarry Association, New Zealand Wood Panels Manufacturers' Association, Transit New Zealand, and Freeman Environmental Solutions discuss each option in turn and conclude a preference for Option 5 (A Combined Approach). They see it as formalising what happens now, and consider it better staying with a system we know. Genesis Power and National Council of Women also analyse each option in turn and both recommend Option 5. Auckland Area Health Board, Fulton Hogan, New Zealand Dairy Research Institute and Petroleum Exploration Association of New Zealand support Option 5, but for Fulton Hogan only if 'reasonable' modelling design concentrations are formulated. New Zealand Leather and Shoe Research Association and New Zealand Tanners' Association also, 'on balance', support Option N 5, as it appears to offer the advantage of consistency and a degree of flexibility. Both Mighty River Power and Natural Gas Corporation consider Option 5 as a useful approach, and it reflects current practice in Regional Councils. New Zealand Dairy Research Institute propose that final selection of the most appropriate approach should be done in conjunction with the work on the atmospheric dispersion modelling guide.

Carter Holt Harvey is concerned that there could be regulation of technology based emission limits, as they feel this would be inappropriate. Environment BOP supports the use of the 'best practicable option', especially for odour management, and is opposed to ambient guidelines being used as compliance. Petroleum Exploration Association of New Zealand also support the 'best practicable option', but that advice should be made available to regulatory agencies about what is, and what is not, regarded as 'best practicable' for this country. They also support the cautionary use of ambient air quality guidelines as boundary conditions for an emission.

Genesis Power thinks section 4.4 (Technology-based emissions limits) would be better positioned to precede section 4.2 (Options for New Zealand). Freeman Environmental Solutions agrees with the discussion in section 4.4 of the document. Genesis Power wants section 4.4 to be expanded, to discuss in more detail when it is appropriate to use modelling, and when it is appropriate to rely on use of the best practicable option. New Zealand Pavement & Bitumen Contractors' Association and Aggregate & Quarry Association, and New Zealand Wood Panels Manufacturers' Association want methods to account for background concentrations to be included in the guide to atmospheric dispersion modelling. Transit New Zealand agrees with the points in the document about the need to safeguard against inappropriate use of the guideline values. In particular, they see a need for more guidance on the assessment of point source discharges, how to take into account background concentrations, and when is it appropriate to require consent applicants to use dispersion modelling.

4.2 Proposed amendments

i. The submissions indicate this section of the Discussion Document should be limited to advising on how the guidelines should not be used for dealing with point source discharges. The remaining discussion could be removed and form the basis of a separate document or good practice guide.

ii. The "Guide to Atmospheric Dispersion Modelling" referred to in Appendix 1 of the Discussion Document which is currently being produced will aim to address the various concerns expressed on that aspect, including a decision on the most appropriate option for establishing assessment criteria.

5 Proposals for Managing Air Pollution Impacts on Ecosystems

5.1 Summary of submissions

Fletcher Steel believes it is important to have guidelines that clearly relate to the New Zealand environment and not to translate overseas criteria. Genesis Power makes similar, strongly-held points of view, and notes that Technical Report 15 misquotes the World Health Organisation document from where it took the proposed critical level for nitrogen oxides (being intended for nitrogen dioxide and nitrogen oxides). Both Mighty River Power and Natural Gas Corporation believe the critical level approach is open to misinterpretation. Milburn are of a similar view, and wonder, for example, how on a site-specific basis the guideline/standard, modelling design concentration, and the critical level value for sulphur dioxide are going to be applied.

Parliamentary Commissioner for the Environment would like to see national guideline values for critical loads for animal health, such as grazing animals in areas close to fluoride emissions. Environment BOP observes that most animals in New Zealand are farm animals and therefore do not live long enough to show the effects of air pollution, and they note that fertiliser application creates interference to analysis of the effects of nitrogen and metals on plants. Environment Southland believes there should be further information on how the critical levels for protecting ecosystems should be applied when assessing resource consent applications and carrying out regional state of the environment air quality monitoring programmes.

5.2 Proposed amendments

i. In view of the points raised, current proposals in this area needs to be examined. It is therefore proposed that this section remains as a draft guideline in the final document, until further work is carried out focusing on ecosystems relevant to New Zealand.

ii. The misquote from the WHO regarding nitrogen oxides be corrected to a 30 $\mu g/m^3$ annual average for nitrogen dioxide not NOx.

6 Options for Future National Tools

6.1 Summary of submissions on National Environmental Standards

Environment BOP and Environmental Futures support national ambient air quality standards. New Zealand Wood Panels Manufacturers' Association supports the use of national environmental standards where a degree of consistency throughout the country is necessary, but where local conditions and circumstances need to be taken into account national guidelines may well be more appropriate. Auckland Area Health Board supports 'in principle' the need for national environmental standards for priority air contaminants. Christchurch City Council is opposed to national standards, on the grounds of 'economic efficiency'. Environment Canterbury considers national environmental standards are essential for the key pollutants in Table 1. Nelson City Council notes that more stringent (but not more lenient) guidelines levels can be set by regional councils, and as such the guidelines will effectively become mandatory minimum national standards which councils are obliged to follow. Parliamentary Commissioner for the Environment is concerned that the requirement for a s32 analysis is viewed as a deterrent to development of national environmental standards.

Sir David Hay is concerned that the discussion on national environmental standards does not address the question of the number of exceedances. He questions whether PM_{10} is the top candidate to be converted to a standard, as he thinks it is still controversial (and quotes the United States spending over $US400 million over the next decade on research into the subject). He says that $PM_{2.5}$ or $PM_{1.0}$ may be a higher candidate to be a national standard than PM_{10}. Sir David does however suggest that a national standard may avoid what he sees as a very rigorous guideline being set by a determined council. Environment Southland recognises that there may be situations where national standards may be appropriate, but is concerned about any mechanism which would reduce flexibility in regional decision making.

Both Mighty River Power and Natural Gas Corporation consider further analysis is required on how standards would be used. New Zealand Pavement & Bitumen Contractors' Association and Aggregate & Quarry Association, and New Zealand Wood Panels Manufacturers' Association encourage greater national consistency between regional councils when implementing national guidelines, but without detracting from considerations of local conditions and circumstances.

Genesis Power concludes that, on balance, there should not be national standards for ambient limits, emission limits or design criteria. Carter Holt Harvey Kinleith Mill believes regional councils are now doing a fair job and should be left with the prime responsibility. Carter Holt Harvey and Coal Research Association are also not in favour of national environmental standards for air quality. Coal Research believes local authorities know best how to apply particulate concentrations for coal mining. Fletcher Steel think it would 'probably be best' to stay with guidelines.

Fulton Hogan is concerned about differences in interpretation of the existing guidelines, and although they do not mention national environmental standards, they feel the Ministry should adopt a more 'hands on' approach to managing industrial and point source discharges, to provide greater national consistency. Genesis Power also supports that view.

6.2 Points raised on other matters

Environment BOP is not in favour of discharge limit standards and design standards. Auckland Area Health Board supports an investigation into the use of economic instruments, and sees merit in increased use of environmental education on air quality issues. Coal Research Association see economic instruments as unnecessary. Environment Canterbury cautions on expecting too much from economic instruments, and that they will only be effective if they are specifically targeted. New Zealand Wood Panels Manufacturers' Association also argues that economic instruments need to be carefully tailored, and not cause unreasonable economic impacts. Mighty River Power believe economic instruments are not applicable in New Zealand at present, but if used they must be applied on an equitable basis. Natural Gas Corporation makes similar points. Milburn believe it is a topic that should stand alone and not be part of this document.

Environment Canterbury consider education programmes on their own do little to raise awareness, and that changing behaviour is another step altogether. Environment Southland notes that the success of education programmes can be difficult to quantify, but believes that greater community education is desirable especially in the area of hazardous air pollutants. New Zealand Wood Panels Manufacturers' Association supports any reasonable approach to provide information to the public.

6.3 Proposed amendments

i. The proposal is to retain the status as ambient air quality guidelines at this stage. However, from the submissions received, there is some support to develop national ambient air quality standards for some contaminants such as carbon monoxide, nitrogen dioxide, ozone, PM_{10} and sulphur dioxide. The Ministry will undertake to investigate further how to develop national environmental standards and identify which contaminants it would be suitable to develop national environmental standards for.

7 Concluding Remarks

The Ministry would like to thank all those involved in the process of developing and revising these guidelines and those who have made submissions.

The Discussion Document issued in December 2000 provided a wide-ranging discussion on approaches to air quality management. The latest proposal to streamline certain sections of the document such as the 'options for managing industrial discharges' should help to make the revised document become much more focused on review of the ambient air quality guidelines.

The Ministry recognises that there was some confusion caused by not including enough of the background information. To ensure the document is comprehensive, pertinent information from the technical reports will be included in the final guideline document.

From the discussion on approaches to air quality management, there is widespread concern that it focuses solely on industrial sources and omits the far more important problems of other point source discharges such as domestic heating, open burning, other combustion sources and non-point sources such as motor vehicle air pollution. The revised guidelines will clarify this point.

Finally, the Ministry will undertake to investigate further the development of national environmental standards and carry out further work on the proposals for managing air pollution impacts on specifically New Zealand ecosystems.

8 Submissions Received

Fifty submissions were received in response to the Discussion Document. The largest proportion (44%) came from industry (including Crown industry entities) and industry associations.

Other groupings of submitters are individuals (14%), non-governmental organisations (8%), local and central government (including non-industrial Crown entities) (28%), and consultants (6%). Where a consultant was responding on behalf of an industry group, the submission is considered to be from the industry group.

The total number of submissions, and the proportions from the various groupings, are similar to those received in response to the discussion document for the 1994 Ambient Air Quality Guidelines.

A full list of the submitters is given in the Annex.

Annex: List of Submitters

Individuals

Sir David Hay
Dr John Hoare
Janet R Holm
Kerry Robinson
Janette Smith
Dr Jim Stott
1 Anonymous

Non-governmental organisations

New Zealand Automobile Association Inc
Environmental Futures Inc
Ravensbourne Residents Association Inc
National Council of Women

Local and central government (including non-industrial Crown entities)

Auckland District Health Board (Health Protection)
Christchurch City Council
Environment BOP
Environment Canterbury
Environment Southland
Hutt Valley District Health Board (Regional Public Health)
Institute of Geological & Nuclear Sciences Limited
Marlborough District Council
Ministry of Health
Nelson City Council
Occupational Safety and Health (Explosives & Dangerous Goods Inspectorate)
Parliamentary Commissioner for the Environment
Transit New Zealand
Waitakere City Council

Industry (including Crown industrial entities) and industry associations

Aggregate & Quarry Association of New Zealand (Inc)
Carter Holt Harvey Ltd (Kinleith Mill)
Carter Holt Harvey Ltd
Coal Association of New Zealand
Exide Technologies Ltd
Fletcher Challenge Building (Steel Group)
Fulton Hogan Ltd, Christchurch
Genesis Power Ltd
New Zealand Leather and Shoe Research Association (Inc)
Mighty River Power Ltd
Milburn New Zealand Ltd
Natural Gas Corporation Ltd
New Zealand Dairy Research Institute
New Zealand Pavement & Bitumen Contractors' Association
New Zealand Tanners' Association (Inc)
New Zealand Wood Panels Manufacturers' Association
Oil Industry Environmental Working Group
Petroleum Exploration Association of New Zealand Inc
Winstone Aggregates (a division of Fletcher Concrete and Infrastructure Ltd)
Wattyl New Zealand Ltd
An industry grouping of AFFCO New Zealand Ltd, Carter Holt Harvey Pulp & Paper Tokoroa, Anchor Products Ltd and Cater Holt Harvey Tasman Kawerau
Anchor Products Ltd

Consultants

Air Resource Management
JCL Air and Environment Ltd
Freeman Environmental Solutions